

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number
WO 2005/040378 A1

(51) International Patent Classification⁷: C12N 15/11
(21) International Application Number:
PCT/EP2004/012857
(22) International Filing Date: 25 October 2004 (25.10.2004)
(25) Filing Language: English
(26) Publication Language: English
(30) Priority Data:
03292666.9 24 October 2003 (24.10.2003) EP

(74) Agents: **PEAUCELLE**, Chantal et al.; Cabinet Armen-
gaud Ainé, 3, avenue Bugeaud, F-75116 Paris (FR).

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(71) Applicants (*for all designated States except US*): IN-
STITUT CURIE [FR/FR]; 26, rue d'Ulm, F-75248
Paris Cedex 05 (FR). CENTRE NATIONAL DE LA
RECHERCHE SCIENTIFIQUE (CNRS) [FR/FR];
3, rue Michel-Ange, F-75794 Paris Cedex 16 (FR).
MUSEUM NATIONAL D'HISTOIRE NATURELLE
[FR/FR]; 43, rue Cuvier, F-75231 Paris Cedex 05 (FR).
INSTITUT NATIONAL DE LA SANTE ET DE LA
RECHERCHE MEDICALE (INSERM) [FR/FR]; 101,
rue de Tolbiac, F-75654 Paris Cedex 13 (FR).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): DUTREIX, Marie
[FR/FR]; 6, rue de Chalais, F-94240 L'Hay-les-Roses
(FR). SUN, Jian-Sheng [FR/FR]; 49, avenue de Pomereu,
F-93600 Aulnay-sous-Bois (FR).

(54) Title: NUCLEIC ACIDS USEFUL FOR TRIGGERING TUMOR CELL LETHALITY

(57) Abstract: The invention relates to double-stranded nucleic acid fragments comprising a chemically modified backbone and at least 4-1000 bp, preferably 8-500 bp, and most preferably 16-200 bp. The disclosed molecules (DRIL molecules) may interfere with DNA damage signalling and repair pathways, in particular the non homologous NHEJ pathway of double-stranded break repair. The invention discloses the application of the DRIL molecules as adjuvant compositions to be used in association with a DNA breaking treatment, particularly radiotherapy or chemotherapy, in combination with a pharmaceutically acceptable carrier, in an efficient amount to be introduced in the tumoral cell nuclei in order to trigger DNA repair induced lethality (DRIL in short) of tumoral cells/tissues.

WO 2005/040378 A1